



CITY OF HAYWARD

STAFF REPORT

AGENDA DATE 04/24/03

AGENDA ITEM 4

TO: Route 238 Working Group

FROM: Director of Public Works

SUBJECT: Tentative Schedule/Timeline

Attached is a preliminary schedule of future working group meetings. Where applicable, staff has indicated expected topics based on the consultant's planned schedule for deliverables. In each case, the Working Group will receive information on the topic the week before the meeting with their agenda package. It can be seen that some meetings do not yet have a specific topic, but it is expected that additional items will be developed during Working Group discussions.

Also attached is a copy of the Mark Thomas scope of work, which includes the planned deliverables on the last page, and should help Working Group Members better understand what will be prepared by the consultant.

Prepared by:

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Recommended by:

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Approved by:

Jesús Armas, City Manager

Attachments: Exhibit A: Route 238 Working Group Meeting Tentative Schedule/Timeline
Exhibit B: Scope of Work - Route 238 Corridor Improvement PSR

April 23, 2003	Working Group Meeting #2
May 22, 2003	Distribution Working Paper #1 – Summary of Issues
May 28, 2003	Working Group Meeting #3 – Summary of Issues Discussion
June 25, 2003	Working Group Meeting #4
July 23, 2003	Working Group Meeting #5
August 27, 2003	Working Group Meeting #6
September 16, 2003	Distribution Working Paper #2 – Transportation & Right-of-Way Analysis
September 24, 2003	Working Group Meeting #7 – Transportation & Right-of-Way Analysis Discussion
October 22, 2003	Working Group Meeting #8
November 27, 2003	Distribution Working Paper #3 – Grade Separation Concept & Stage Construction and Pre-conceptual Design Drawings
*December 3, 2003	Working Group Meeting #9 – Grade Separation Concept & Stage Construction and Pre-conceptual Design Drawings
January 28, 2004	Working Group Meeting #10
February 19, 2004	Distribution Working Paper #4 – Conceptual Cost Analysis Working Paper #5 – Relinquishment Improvement
February 25, 2004	Working Group Meeting #11 – Discussion of Conceptual Cost Analysis and Relinquishment Improvement
March 16, 2004	Distribution Draft Project Study Report & Environmental Initial Study
March 24, 2004	Working Group Meeting #12 – Draft PSR Discussion
April 28, 2004	Working Group Meeting #13
May 10, 2004	Final Project Study Report

* Because of the Thanksgiving and Christmas holidays, this meeting will cover both months and is the first Wednesday in December.

Exhibit A

Task 1 Project Management – Under this task, Consultant will perform the following project management activities.

1.1 Project Management

- a) Supervise, coordinate, and monitor product development.
- b) Coordinate in-house design staff and subconsultants.
- c) Assure compliance with codes and standards as acceptable to the City of Hayward.
- d) Maintain project files.
- e) Coordinate project oversight reviews by agencies in addition to the City of Hayward as required.
- f) Prepare and maintain a CPM project schedule (Microsoft Project).
- g) Prepare and submit correspondence and memos, including meeting minutes.

1.2 Project Administration

- a) Prepare and submit monthly progress reports including as a minimum all progress reporting elements included in the sample ACTA Progress Report.
- b) Prepare a monthly invoice summary that presents contract budget, reallocated budget amounts, prior billing amount, current billing, total billed to date, and a total percent billed to date, for each task.
- c) Provide a summary table in ACTA format indicating the amount of LBE and SLBE firm participation each month based upon current billing and total billed to date.
- d) Provide a monthly invoice by task that will present charges by staff member at agreed to hourly rates, expense charges, and subconsultant charges. Support documentation for MTCO direct expenses and subconsultant charges will be attached.

1.3 Quality Assurance / Quality Control - Consultant will establish and implement a quality control procedure for design activities by in-house and subconsultants.

1.4 Agency Coordinations – Consultant will perform coordination with Agencies as required for project development.

Task 2 Data Collection – Under this task, various members of the Consultant team will research and collect existing data that will be used in project development. The following activities will be performed:

- 2.1 Assemble and review existing reports, studies, maps, as-builts, and other available information from the City of Hayward.
- 2.2 Assemble and review existing roadway plans, right-of-way maps, aerial photographs, reports, accident data, and other available information from Caltrans.
- 2.3 Contact City staff and utility agencies to obtain existing and proposed utility information within the project limits.
- 2.4 Obtain assessors parcel numbers and assessors rolls for properties along the roadway corridor.
- 2.5 Assemble existing traffic data from the City and Caltrans

- 2.6 Assemble information from the transit agencies providing services in the project area.
- 2.7 Perform field observations to identify existing lane configurations, traffic control devices, and issues associated with adjacent businesses and residences such as roof overhangs and advertising signs that may be impacted by the project.
- 2.8 Prepare and maintain a data log noting data requested, of who, when requested, when anticipated and when received. This will be updated and distributed at the Progress Meetings.

Task 3 Transportation Analysis – Consultant will be primarily responsible for all transportation analyses for the project. The following subtasks present their work program:

- 3.1 Traffic Congestion Evaluation - Under this task, the operational conditions of the corridor under no project and project conditions will be determined through the following:
 - a) Traffic Model Review and Model Forecasts - Although this study will use the recently calibrated City of Hayward travel demand model, Consultant proposes to do a brief review of the model to determine where the model is well calibrated and where it is deficient compared to counts, especially in the immediate study corridor. Consultant will review the network, both lanes and capacities, in the study corridor, together with locations of centroid connectors to ensure that incorrect loading points do not skew intersection-turning volumes at critical study intersections.

The City of Hayward Model will be applied to generate travel forecasts for two study years, 2000 and 2025, and for two time periods, AM and PM peak hour. The purposes of the Year 2000 forecasts are to perform the calibration described above and to estimate the increase in demand the roadway widening would have compared to existing demand.

This scope assumes that forecasts will be provided for up to six scenarios, including (1) Year 2000 No Project; (2) Year 2025 No Project; (3) Year 2010 With Project; (4) Year 2025 With Project (5) Project Alternative 1 (less right of way); and (6) Project Alternative 2 (to be determined). One project alternative will be reduced widening associated with less right of way take, and the second project alternative is available if needed. Consultant may also perform assignment runs later in our analysis for additional needs that may arise, such as analyses of street closures, if Consultant believes the model is an appropriate tool.

- b) Traffic Operations Inputs - Roadway segment volumes will be provided for the operational analysis directly from the model for each scenario. However, if it is determined during Task 3.1(a) that there are significant discrepancies between counts and the base model volumes, segment volumes would be prepared using an incremental adjustment procedure based on observed traffic counts and model growth increments. Intersection turn movement volumes will be provided for each alternative using a Furness adjustment procedure at all study intersections. Intersection traffic volume forecasts will be provided at up to forty (40) intersections for traffic operations analysis purposes.

Consultant will construct a Synchro network and enter the traffic volume, intersection geometry, and signal information to perform a signal coordination analysis for the corridor. Consultant will initially enter existing data and compare the results using the existing coordination settings to a version of the model using newly coordinated signals to determine if the existing settings are optimal. For future conditions, Consultant will modify the "existing" Synchro model to represent With Project conditions, optimize the signal coordination, then enter the splits, phasing, and offsets into the VISSIM model to perform the simulation analysis.

- c) Environmental Analysis Inputs - Additional travel forecast output will be provide as needed for the noise impact and air quality analysis. This may require additional model runs to extract specific data required by the environmental analysis. This travel forecast information will supplement the traffic information provided by the traffic operations studies.
- d) Basic Intersection Level of Service - Consultant will enter the applicable traffic data (volumes, geometry, etc.) into TRAFFIX software in order to provide basic level of service results using 1994 *Highway Capacity Manual* operations methodology. This format will be appropriate for summarizing changes to intersection operations from no project-to-project conditions, as well as serve as a convenient form of record keeping.
- e) Basic Link Level of Service - As for the intersection level of service calculations, Consultant will utilize TRAFFIX software to perform the basic *Highway Capacity Manual* calculations to report arterial level of service for all of the major roadway links in the corridor.
- f) Effectiveness of the Proposed Project - While basic arterial and intersection level of service calculations provide important insights into the operation of the corridor, Consultant will create a simulation model of the entire route using **VISSIM** software in order to develop a comprehensive vision of the project's effectiveness.
- (1) VISSIM Model Building and Validation - Consultant will initially create the model network based on existing conditions. Consultant will utilize available plans, aerial photographs, and field data in order to prepare the network, which will extend one intersection to either side of the study roadway. Consultant proposes to code most of the signalized intersections as coordinated fixed time signals. Since Consultant will be analyzing peak conditions, when most of the signal phases operate at their maximum green times, this will provide a good simulation of actual conditions at minimal budget. Consultant will allow for coding up to five of the intersections (to be determined through discussions with City staff) as having actuated controllers.

Consultant will then perform a reasonable level of validation that will enable us to conduct a meaningful comparison of project and no project conditions, as well as to evaluate project alternatives. For example, Consultant will probably validate to traffic volumes and overall travel time, but not necessarily to left-turn pocket queues at every intersection.

- (2) Initial VISSIM Model Output - Consultant will run the model to obtain technical output that is comparable to the Measures of Effectiveness (MOEs) obtained using the static *Highway Capacity Manual* methodologies described above. This comparison will certainly show differences between the two methodologies – Consultant will provide discussion in the applicable deliverables as to why the results are different and whether the differences are significant.
- (3) Project Conditions and Future Models - Once the existing conditions model is working properly, Consultant will create a “With Project” model with roadway geometry consistent with the proposed project and volumes consistent with the Year 2000 With Project forecasts. Consultant will also create future No Project and With Project models based on volumes from the demand modeling task and the project geometry coded into the network.

One of the key components of the analysis to be studied under this subtask will be the proposed grade separation at Foothill/Mission/Jackson. Our VISSIM model will be coded with the proposed configuration, but Consultant will code and evaluate up to two additional configurations. Using VISSIM, Consultant will be able to identify merging, queuing, or other problems, and provide recommendations to the design team to fine-tune (or change significantly) the configuration.

3.2 Peak Hour Parking Prohibitions - There are three components to evaluating this part of the proposed project.

- a) First, Consultant will perform a parking occupancy study covering peak hours to determine the level of impact on people desiring to park along the corridor. Consultant will accomplish this by first defining the peak period that the curb lanes would be open to traffic using traffic counts. Consultant will then perform a license plate survey of every curb space along the corridor every half hour of the peak period. This will provide us with the number of vehicles that would be displaced from parking along the curb, as well as an estimate of a typical dwell time of parked vehicles. In areas where specific curb spaces are not marked, Consultant will estimate the number of spaces.
- b) Second, Consultant will observe the level of effectiveness of the existing peak period parking prohibitions in the study area, as well as contact other agencies that incorporate this technique into their toolbox of congestion relief tools (e.g., San Francisco). Key questions that Consultant will address are: How much enforcement should be planned? How much does enforcement cost? How often are vehicles left parked illegally during the peak period? What effect does one illegally parked vehicle have on the traffic flow? During the process of answering these questions, Consultant will develop a framework of a program that the City can use to operate the corridor.
- c) Third, Consultant will use the VISSIM model to test various scenarios, such as the effect of one or more vehicles left parked in the curb lane – i.e., Consultant will

introduce a parked vehicle into the model and quantify the delay caused by such a vehicle.

- 3.3 Street Closure Analysis - During our analysis of congestion of the corridor, Consultant will identify potential side streets that are reasonable candidates for closure. Consultant will then use the VISSIM model to simulate traffic conditions with the streets closed in various combinations to assess the impact on the corridor itself and to other major side streets. Another possibility is that Consultant may suggest that certain streets be converted to right-in/right-out only – this would also be tested using the VISSIM model. Consultant will evaluate effects of diversions caused by street closures using VISSIM or, if appropriate, manual reassignment of traffic.
- 3.4 Left-turn Lanes Analysis - For this task, Consultant will introduce left-turn lanes at certain locations along the corridor using the VISSIM model. The locations will be determined through discussions with City staff. Changes to the operating conditions from VISSIM model runs will be documented, and recommendations will be made regarding incorporating (or not) these lanes into the proposed project.
- 3.5 Collision Analysis - Based on collision data collected during Task 2, Consultant will summarize the data by intersection, as well as report a comparison of study intersections with statewide averages. Consultant will identify trends, if any, such as an intersection that has an abnormally high number of broadside collisions. If there are specific collision problems that can be addressed by components of the project, Consultant will make recommendations of features to be incorporated into the design.
- 3.6 Pedestrian and Bicycle Accommodation - For pedestrians, the key concern will be for pedestrians crossing Foothill or Mission at locations where the roadway is widened because it would require a greater emphasis on side street green time than main street green time. One of the options for treating pedestrian movements may be to prohibit them at certain locations – this may be perceived as an undesirable tradeoff to increase traffic flow, but it should be considered. It may be desirable to consider a pedestrian bridge at one or more locations, with the highest pedestrian traffic.

The issues for bicycles are more related to conditions along the corridor rather than across it. With the focus of the proposed project being to increase capacity (and, by association, speed and volume) for motor vehicles, it is probably best to separate bicycle traffic from that particular roadway, despite it being identified as a future Class 3 bike route in the Alameda County Congestion Management Agency's countywide bike plan. Currently, there is a Class 3 bike route that runs parallel to much of the route along Whitman Street, as well as a Class 2 bike lane along Huntwood Avenue south of Tennyson. Where it seems impractical to develop Foothill/Mission as a Class 3 Route, Consultant will investigate potential improvements or extensions to the existing bike route, as well as ways to increase connections between it and Foothill/Mission.

- 3.7 Transit Impacts - Under this task, Consultant will identify existing bus stop locations and comment on the impact of widening on them, if applicable. For those bus stops in the areas where sidewalks are to be narrowed, necessary right of way to achieve handicapped access will be identified. Consultant will also incorporate buses into the VISSIM model in order to quantify the effects of buses stopping during peak periods. Based on the

outcome of these evaluations, Consultant will make recommendations regarding further widening (or not) to accommodate buses stopping during peak periods (to remove the buses from the traffic flow). Particular attention in the transit analysis will be given to transit service needs of Cal State Hayward.

3.8 Route Relinquishment Analysis - Under this task, Consultant Team will work together to prepare an analysis of the scope and cost of the improvements necessary for the relinquishment of Foothill Blvd / Mission Blvd (Route 238), Mission Blvd (Route 185 to the northern City boundary), and Jackson Street (Route 92 to I-880) in accordance with Chapter 26 of the Caltrans Project Development Procedures Manual. This item of work will include the following:

- a) Perform a pavement deflection study to evaluate the condition of the existing pavement. Core samples will also be taken to determine the existing pavement thickness. The analysis will be used to determine required structural overlay requirements and identify areas in need of total reconstruction. A report will be prepared outlining the improvements required prior to the relinquishment of the highway and to develop a cost for the necessary repairs.
- b) Prepare a cost estimate for bringing the pavement section of each route to an acceptable condition
- c) Prepare an estimate of the additional annual maintenance cost to be incurred by the city for each roadway segment, including traffic signal maintenance costs
- d) Prepare a cost estimate for providing curb, gutter, sidewalk, and drainage improvements along those unimproved sections of highway outside of the 238 corridor study area
- e) Prepare an estimate to upgrade of existing traffic controllers from Caltrans Type 170 controllers to the City's Econolite ASC2 controllers, including retiming costs

Task 4 Topographic Surveys – Consultant Team will perform the following activities to provide the topographic mapping for the preparation of a conceptual designs and preliminary construction cost estimates.

- 4.1 Data Gathering – Consultant will assemble existing survey ties and monument data from Caltrans, Alameda County and the City of Hayward.
- 4.2 Perform Field Surveys – Consultant will set control for aerial ortho photo and aerial topographic mapping using NAD 83 and NGVD 88.
- 4.3 Prepare Ortho Photo Mapping and Grade Separation Topographic Mapping – Consultant will prepare digital color ortho photo aerial maps at a resolution of 0.25 feet of the roadway corridor and aerial topographic mapping at the proposed grade separation area. Ortho photo mapping will be prepared at a scale of 1" = 40' horizontal and will encompass a 1,000 foot width the roadway corridor. Aerial topographic mapping within the general limits of the proposed grade separation will be prepared at 1" = 40' horizontal scale with 1-foot contour intervals.

Task 5 Design Issues - Detailed analysis of technical issues and project development will include development and refinement of the roadway and grade separation geometrics; a preliminary analysis of the bridge structure at the "Five Flags" intersection; and analyses of

drainage impacts, utility relocations, noise barriers, and landscaping requirements. The following activities will be performed:

- 5.1 Conceptual Layout Plans - Consultant will prepare conceptual layout plans for the “preferred project” at a scale of 1”=40’ and will incorporate aerial mapping developed under Task 4. The layout plans shall show proposed edge of pavement/curbs, driveways, pavement striping, limits of new pavement or pavement overlay, existing edge of pavement beyond the limits of the project. The plans will also show existing and proposed right of way, curve data, typical cross sections, and preliminary centerline profiles with superelevation data.

Up to three (3) schematic layouts for alternative screening purposes shall be prepared under this task for the roadway corridor and the proposed grade separation at the Five Flags intersection using digital aerial photo maps at 1” = 200’ horizontal scale.

Base units for layout plans shall be in English format with metric equivalents indicated in parenthesis. Caltrans metric standards will be utilized in determining horizontal and vertical dimensions as much as possible.

- 5.2 Drainage Analysis - Consultant will map existing watershed areas utilizing USGS 7.5 minute quadrangle maps and develop existing storm drainage systems from City GIS mapping and as-built information. A preliminary evaluation of drainage will be made based on existing drainage systems, and the proposed improvements (including temporary facilities).

The drainage review will be concerned with the removal and relocation of existing drainage systems, as well as, the need to construct new systems and temporary drainage systems during construction. Existing maintenance and/or capacity issues will be reviewed. This review will include information obtained from County or City storm drainage master plans; discussions with Caltrans, City, and County maintenance staff; review of topographic data; and preliminary field reviews.

Consultant will recommend appropriate further studies and proposed mitigations for increased runoff or changes in the drainage characteristics due to the project. Since much of the project surface is already hardscaped, it is not anticipated that the project will result in a large increase in peak discharge to any one area other than the existing depressed section of Jackson under BART/UPRR. Consultant anticipate that the existing Jackson Street Pumping Station will need to be modified, replaced and/or supplemented due to the additional runoff reaching that low point once Foothill/Jackson is depressed under Mission Blvd and Watkins Street.

- 5.3 Bridge Advanced Planning Study – Consultant will prepare advanced planning studies for new bridge and retaining wall structures being proposed for the preferred project. The planning studies will evaluate rough structure dimensions, likely structure types, and will develop preliminary construction estimates.

- 5.4 Identify Right-of-Way Requirements – Consultant will develop existing right-of-way limits utilizing GIS files obtained from the City and available record information for the preferred project. Proposed right-of-way requirements will be identified on a parcel-by-parcel basis using the conceptual layout plans and alternatives developed under Task 5.1. Approximate acreages for partial and full takes will be determined and a Right of Way Data table will be prepared summarizing the results of our analysis.

- 5.5 Utility Modifications - Consultant will perform a review of existing utilities within the project area. Utility impacts will be identified in sufficient detail to allow for the development of an accurate cost estimate for the utility relocations and to identify constructability issues early in the project development. Utility impact issues and relocation costs will be broken down in segments along the corridor for the preferred project. Major utility impacts will be singled out and analyzed as to their effects on constructability and costs of the overall project. Existing and proposed utilities will be shown on mapping produced under Task 5.1.
- 5.6 Noise Barrier and Retaining Wall Layouts – Consultant will identify the location of potential noise barriers and retaining walls along the corridor on the conceptual layout plans developed under Task 5.1 for the preferred project.
- 5.7 Traffic Signal and Lighting Analysis - Consultant will review and analyze impacts to existing traffic signal and street lighting systems along the corridor for the preferred project. Modifications required as a result of the proposed improvements to Foothill / Mission will be identified and cost estimates will be prepared.
- 5.8 Landscape Impact Analysis – Using conceptual layout plans developed under Task 5.1, Consultant will conduct a review of the existing landscaping and identify those areas where existing landscaping and trees will be impacted by the proposed improvements. Impacts and mitigation measures will be illustrated through photo-simulations and graphical sections.

Two (2) sites have been identified that are potentially subject to adverse visual impacts or substantial visual change as a result of the widening project. The impacts will be described in narrative and graphic form. Graphic sections and photo-simulations will be prepared showing the visual impacts that are expected to occur in the existing visual environment. Mitigated views will be prepared showing a possible treatment at each site and will be generated in color for use in public workshops. The photo simulations will be photo-realistic rather than wire-frame in character. A hand-drawn image will be prepared to define heights, edges and angles accurately before starting the computer simulations. The locations that have been identified for evaluation are as follows:

- a) Hayward Plunge area; and
- b) Foothill / Mission Grade Separation area

Up to two (2) colored perspective renderings of the preferred alternative will be prepared at the Foothill / Mission grade separation area.

Conceptual prototypical landscape solutions will be prepared for two (2) streetscape areas as follows:

- 1. Where improvements are within the existing right of way; and
- 2. Where widening will occur outside the existing right of way

Prototypical landscape solutions in plan view will be prepared for the edges of the road and for the median to provide an order of magnitude level of development and to

establish streetscape design goals. Cost estimates will be prepared for the entire length of the project based on the prototypes approved.

- 5.9 Preliminary Geotechnical Report – Consultant will review readily available materials from City, County, and State files and prepare a limited geotechnical analysis in support of the proposed project improvements. Site reviews and data research will be performed under this task; however, no field explorations shall be performed.

Special attention will be given to the potential seismic effects of the Hayward Fault at the proposed grade separation to support the development of appropriate foundation designs for the proposed bridge structure. Significant cost impacts may be experienced due to the close proximity of this structure to the Hayward fault and due to high ground water tables in the area.

The potential geotechnical/geologic impacts and mitigations will be discussed on a broad basis including, but not limited to, slope stability, geology, seismic impacts, erosion, groundwater conditions, etc. for the proposed structure foundations, pavement sections, retaining walls, cuts and embankments. Generally, the geotechnical issues relevant to the proposed project are presented in a qualitative manner with no specific design recommendations. Certain design assumptions are made as to the type of retaining wall, type of foundations, approximate pile lengths and approximate slope angles etc. The potential mitigation measures are also provided in a discussion format. These are helpful in defining the overall design program and evaluating the cost impacts.

- 5.10 Prepare Construction Cost Estimates - Consultant will prepare a detailed construction cost estimate for the preferred project proposed improvements, including construction (roadway and structures), right of way, and estimate of future project development activities (environmental, engineering, and construction phase activities), and an order of magnitude estimate for screening alternatives. If phasing options are identified, cost estimates will be developed for the individual project phases. The most recent available data from construction bids received by the City will be collected and evaluated in developing unit prices for various construction items.
- 5.11 Prepare Draft and Final Project Study Report - Consultant will prepare a draft and final Project Study Report (PSR) summarizing the findings and recommendations of the analyses performed under Tasks 3 thru 5. The content of the PSR will be directed to an audience of policy-makers and community representatives. Consequently, this document will be directed to the non-technical audience. Consultant will draft the document using less technical information within the body of the report, and then provide back-up data and technical information in the appendices. Graphics will be incorporated into the body of the text as deemed appropriate.

Task 6 Right-of-Way Analysis – Under this task, Consultant will evaluate the probable costs of the proposed right-of-way requirements identified for the preferred project. The analysis will consider access and parking impacts, utility requirements and modifications/relocations, potential loss of business goodwill, construction contract work, fixtures and equipment, relocation assistance, clearance and demolition costs. Based on our preliminary review of the project site and proposed improvements, Consultant has based the costs associated with performing this task on a total of 117 parcels. Cost estimates for right-of-way will be developed utilizing information available from past relevant appraisals, sales data, interviews with brokers, and assessor information.

Task 7 Construction Issues – Under this task, Consultant Team will collaborate in developing a construction staging program for the preferred project. Effective use of the VISSIM software will be done to evaluate how the proposed improvements can be staged to minimize delays and to reduce impacts to the existing business community within the corridor. The following activities will be performed under this task:

- 7.1 Prepare Construction Staging Plans – Consultant will develop construction staging plans that will depict how existing traffic will be managed during the construction phase. One of the key challenges in the project will be maintaining street traffic during the construction of the roadway widening and the proposed grade separation. The limited work area available will make the staging of construction for the improvements while maintaining traffic extremely complex. These plans will also consider how access to businesses located adjacent to the corridor will be maintained during construction.
- 7.2 Perform Constructability Reviews - The constructability review of the proposed project improvements will also be performed. This review will also look at the issue of maintaining traffic (vehicular, transit, pedestrians, bicycle) and access to adjacent properties during construction of the project improvements, utility relocations required for the construction of the grade separation, and other construction issues.

Task 8 Environmental Issues – Under this task, Consultant will conduct a reconnaissance-level inventory of resources and environmental issues in the corridor and report results in a constraints analysis memorandum, updating the information gathered in previous studies performed in 2001 under the Route 238 Contingency Plan Final Report. This information can be quickly obtained by updating the previous environmental scan and field verifying it, and then it can be used to adjust concept alternatives to minimize impacts.

- 8.1 Perform Technical Studies - The following technical studies will be performed for the preferred project:
 - a) Air quality – Update previous environmental scan comparisons of congested vehicle-miles traveled (VMT) to compare air quality benefits. Identify potential air quality sensitive receptors. Lay out process for subsequent air quality analysis and future data needs.
 - b) Noise and vibration – Identify and map receptors and determine potential range of noise impacts. Use existing ambient data and collect sample ambient data (up to ten 15-minute measurements) to characterize the noise environment. Estimate locations and general range of number of impacted receptors and determine feasibility and type of abatement measures.
 - c) Cultural resources – Conduct state clearinghouse search, map known resources such as the Hayward Plunge and Veterans Memorial, conduct limited reconnaissance level field surveys to identify and map potential resources and determine range of impacts to historic structures and archaeological sensitivity of the alignment. Determine scope of further testing and research.

- d) Water Quality / Hydrology – Consultant will document stream courses and potential changes to natural waterways. Identify potential flooding issues and impacts to riparian zones (e.g., San Lorenzo and Ward creeks) and estimate acreages. Identify design refinements, mitigation approaches, and range of costs for mitigation for wetlands in the creeks.
 - e) Soils / Seismicity / Geotechnical – Consultant will map fault lines and identify potentially unstable slopes.
 - f) Biological Resources – Review resource inventories to determine types of plants and animals that could be affected by the project such as the Alameda whipsnake and red-legged frog. Conduct reconnaissance level field surveys to further identify habitat types and potential endangered species within in the corridor. Map general areas by type of biological resources and determine potential impacts, and typical mitigation measures with a range of costs.
 - g) Visual / Aesthetic – Consultant will determine the potential visual impacts that may result from the proposed concept alternatives using the FHWA/ASLA vividness/intactness/unity measures.
 - h) Community Impacts – Consultant will estimate potential partial and full displacements of existing businesses within the corridor that may be realized due to the proposed project. Potential disproportionate impacts to low-income and minority communities due to displacement of businesses and residences will be identified and documented.
 - i) Utilities and Public Facilities – Consultant will identify and map key community facilities including large, difficult to relocate utilities, parks and recreational facilities, or community services facilities that would be displaced.
 - j) Updated Initial Site Assessment (ISA) – Utilizing information that has been developed from previous projects, Consultant will identify potential hazardous waste sites and evaluate environmental factors that may have impacted the soil groundwater quality at the site. The study will include historical land uses based on study of aerial photographs and other relevant documents. No field exploration and/or testing are included in this phase of the work.
- 8.2 Prepare Initial Study - Consultant will prepare an Initial Study that will clearly identify environmental issues that would need to be addressed in a CEQA Environmental Impact Report (EIR), and focus the future environmental analysis.

A white paper will be prepared under this task to discuss various environmental options for the project and the “shelve life” of existing studies that have been prepared in the past within the project area. An evaluation of the level of technical studies that could be performed “up-front” will be included in the white paper.

Task 9 Meetings and Reporting – Under this task Consultant team members will attend meetings associated with the project. Meeting summaries will be developed for each meeting and distributed to City staff within five (5) days after the meeting is held.

- 9.1 Progress/Technical Working Group Meetings (12) – Monthly meetings with City staff and technical working group to discuss progress being made on the project. City staff will lead all progress technical working group meetings. Meeting date will coincide with pre-meeting for next working group meeting.
- 9.2 Team Meetings - Design coordination meetings with in-house design team and subconsultants as needed.
- 9.3 Working Group Meetings (12) – These meetings will be held on 4th Wednesday of every month, from 5:00 to 7:00 P.M. The Working Group meetings shall be facilitated by the City Manager.
- 9.4 City Council Work Sessions (4) – The purpose of these meetings will be to inform the City Council as to progress being made on the project and to obtain input. Public Meetings (4) – Consultant will facilitate these meetings. Meeting content will be coordinated with City staff prior to holding the meetings. Consultant will prepare large exhibit boards, PowerPoint presentations, handouts, and meeting notes. City shall distribute all meeting notices and agendas; provide meeting place, and refreshments for the meetings.
- 9.5 City Council Meeting (1) – This meeting will present the findings and recommendations of the PSR. City staff will facilitate this meeting with Consultant providing support as needed.
- 9.6 Public Information – Consultant will prepare up to three (3) quarterly newsletters for the project. The content of the newsletter will be coordinated with and approved by the City. A camera-ready colored original will be provided to the City. City will be responsible for publishing and mailing the newsletter

Task 10 Deliverables – The following deliverable items will be provided to the City. An electronic copy and 20 hard copies (40 copies of the Final Project Study Report) of the following documents will be provided.

- ☐ Working Paper #1 – Summary of Issues
- ☐ Working Paper #2 – Transportation and Right-of-Way Analysis
- ☐ Working Paper #3 - Grade Separation Concept and Staged Construction
- ☐ Working Paper #4 – Conceptual Cost Analysis
- ☐ Working Paper #5 – Relinquishment Analysis
- ☐ Pre-concept Design Drawings
- ☐ Environmental Initial Study
- ☐ Draft Project Study Report and Final Project Study Report